

STRATEGIC PETROLEUM RESERVE PROJECT MANAGEMENT OFFICE
U.S. DEPARTMENT OF ENERGY

WORK AUTHORIZATION DIRECTIVE

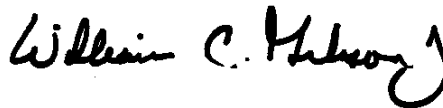
TO

DynMcDermott Petroleum Operations Company

Management and Operating (M&O) Contractor for the
U.S. Department of Energy Strategic Petroleum Reserve

1. TITLE: Operations, Cavern Integrity, and Workover
2. WORK AUTHORIZATION NO.: 2011-1.L 3. REVISION: 0
4. RESOURCE REQUIREMENTS: 5. PERFORMANCE PERIOD
FROM 10/01/10 TO 09/30/11
- ESTIMATED COSTS: \$29,497,539

6. DESIGNATED OFFICIAL:



William C. Gibson, Jr.
Project Manager

7. DOE CONTRACTING OFFICER:



Kelly M. Gele

09/14/10

Issue Date

M&O CONTRACTOR FOR STRATEGIC PETROLEUM RESERVE

Work Authorization Directive

Section A - Operations

I. DESCRIPTION OF WORK

- A. The Contractor shall, in accordance with written directives, perform the following New Orleans operations activities:
 - 1. Provide management and support necessary to operate the Strategic Petroleum Reserve (SPR) facilities in a safe, effective, efficient, timely, and environmentally compliant manner consistent with Department of Energy (DOE) objectives and requirements ensuring compliance with current DOE Conduct of Operations regulations, Occurrence Reporting and Processing System requirements, and DOE Corporate Operating Experience Program.
 - 2. Direct operations activities to ensure that all phases of operational readiness are scheduled and maintained with particular emphasis on drawdown-critical activities.
 - 3. Provide oversight of fluid movement operations (crude oil, raw water, and brine).
 - 4. Insure that site-specific configurations and operations procedures at all sites are in compliance with established design and performance criteria, incorporating proposed conceptual and detailed designs for site modifications as necessary.
 - 5. Manage the SPR day-to-day execution of solution-mining, oil fill, storage, removal, drawdown, abandonment, and operations.
 - 6. Coordinate the off-loading and lifting of oil at commercial terminals and its temporary storage in DOE and/or commercial tanks.

7. Prepare crude oil loss investigation reports to include findings and recommendations for losses that exceed 100 net barrels per incident to support the Crude Oil Accountability Review Board.
8. Participate in the planning and execution of drawdown simulations, Systems Test Exercises (STEs), Recovery Program Exercises (RPXs), readiness reviews, exercises, and withdrawals of SPR oil, utilizing computer models when possible to analyze operational scenarios. Develop and implement formal drawdown readiness awareness program, to include training and performance evaluation components.
9. Manage the Operations Control Center for gathering and disseminating data on operations and maintenance of the SPR sites. Operate the Command Center during drawdown, emergencies, and exercises.
10. Operate communications system established by the States of Louisiana and Texas for mutual notification of excavation or other construction activities which could possibly threaten underground utilities or pipelines.
11. Manage and operate the SPR Aviation Program in accordance with the Aviation Implementation Plan.
12. Develop and maintain computerized operations models for drawdown, distribution, and terminalling activities.
13. Ensure recovery capability for drawdown, to include equipment, personnel training, and all required procedures/guidelines.
14. Ensure that the SPR on-site laboratories are maintained in an operational readiness state to support SPR operations.
15. Maintain detailed records and publish monthly the SPR inventory in underground cavern storage, aboveground storage tanks, and cross-country and on-site pipelines, commercial terminals, and leased facilities.
16. Develop and implement the 10-year cavern and gas regain sampling programs, including a monthly schedule update on these programs.

17. Manage the SPR crude oil quality control program, including those actions associated with sampling, analysis, metering, data recording and reporting, and upgrades/downgrades.
18. Maintain status summary of terminal storage, costs, throughput capability, and operational variances and perform every 2 years Terminal Distribution Readiness Assessments.
19. Implement and manage those actions involved in the inspection and verification of the quantity of crude oil during its receipt, handling, transport, storage, and custody transfer. Perform trend analysis of oil movement variances.
20. Manage the SPR Energy Management Program in accordance with Federal laws, DOE Orders, and other directives. This program applies to the management of all energy resources, including electricity, water, and fuels (diesel, gasoline, propane, and natural gas).
21. Collect, analyze, and maintain utility usage data, to include realtime monitoring and forecasting of electrical usage/demand, load management, and utility usage/cost study activities.
22. Define and implement energy efficiency and transportation programs, to include facilities surveys and energy awareness programs.
23. Ensure renewable energy purchases are at levels consistent with current guidelines in EPACT 2005, Executive Orders 13423 and 13514, and other directives.
24. Support negotiations with, and administer utility power contracts.
25. Implement vapor pressure management plans, to include sampling and other field measurement programs. This includes real time Degas Plant data on the Vapor Pressure Program ("U" drive).
26. Assist in preparation of annual operations-related budgets and conduct operations in accordance with approved funding allocations.

27. Manage the operation of the Foreign Trade Zone (FTZ) activities at the DOE SPR, to include customs compliance reporting and development of the Annual FTZ Report.
28. Maintain and keep current the SPR Crude Oil Sample Management Organizational System (COSMOS).
29. Support DOE in negotiations, awards, and contract administration, including drawdown, oil sales, oil purchase, exchange contractors, lease agreements, and terminal contracts.
30. Maintain and keep current pigging frequency documentation to enable analysis of data and history.
31. Conduct quarterly tests on all drawdown-critical equipment to include meters, provers, samplers, densitometers, and pumps and motors.
32. Provide notification of and monitor off-site drilling and seismic activities in the vicinity of the sites.
33. Manage the Superfund Tax Liability and the Oil Spill Liability Trust Fund Tax, providing reports as needed.
34. Manage the Texas Coastal Protection Fee, providing reports as needed.
35. Manage the day-to-day activities associated with the oil logistics programs. Maintain and update the SPR Website with the oil logistics, delivery, and receipt information, perform reconciliations of quantities owned and received, and quality differentials.
36. Maintain and update as necessary the Allegro System (Crude Oil Valuation Assessment Tracking System), Platts Argus oil pricing/information service as required by DOE requirements.
37. Support DOE annual Lease Evaluation of leased pipelines and terminals by monitoring Lessee operations and maintenance activities and submitting written reports.
38. Manage contracts, including third-party inspection and crude oil trading consultant as required by DOE.

39. Conduct Annual Assessment of Terminals Emergency Power Generation as required by DOE.
- B. The Contractor shall, in accordance with written directives, perform the following site operations activities:
1. Operate the SPR facilities in a safe, effective, efficient, timely and environmentally compliant manner in accordance with Levels I, II and III criteria, and the DOE-approved Operating Manuals and Procedures, ensuring compliance with current DOE Conduct of Operations regulations, Occurrence Reporting and Processing System requirements, and DOE Corporate Operating Experience Program.
 2. Perform integrated operational and site planning to assure adequate preparation, necessary resources, and formal scheduling of all SPR activities to achieve program objectives.
 3. Ensure that site-specific configurations and operations procedures are in compliance with established design and performance criteria.
 4. Manage the site day-to-day execution of fluid movements to include oil fill, oil recirculation, brine disposal, drawdown, and emergency preparedness.
 5. Participate in the planning and execution of drawdown simulations, exercises, STEs, and withdrawals of site oil.
 6. Operate, test, and maintain the SPR pipelines in accordance with State and Federal regulatory requirements.
 7. Perform Control Room operations which include monitoring and operation of Control Room equipment, communications, and maintenance of logs on all pertinent events occurring on site.
 8. Manage remote operations that require field monitoring such as Raw Water Intake Structures.
 9. Conduct all assigned Recovery operations to include planning, site preparation/decommissioning, equipment usage/warehousing, and personnel utilization/training.

10. Assist with all field activities related to vapor pressure management programs.
11. Manage and operate the SPR on-site laboratories and the Big Hill crude sample storage facility, providing oversight and assuming responsibility and accountability for the management and oversight functions in the laboratory, in support of SPR programs for crude oil quality and environmental requirements.
12. Ensure that proper permits are issued to maintenance and subcontractor personnel and that safety and environmental procedures are followed.
13. Coordinate crude oil movements with pipeline operators ensuring the sites are fully informed of schedules.

II. DELIVERABLES

Deliverables include the following:

<u>Deliverables (E = Electronic via Link to a Document Management System, H = Hardcopy)</u>	<u>Due</u>
1. Daily Site and Degas Plant Readiness Report to include Operations, In-Line Pump and Motor Status, and Daily Oil Movements and any crude oil out of specification (E)	Daily by 0700 hours
2. SPR Oil Inventory Report (E)	On or before the 8 th working day following report month
3. Degas Plant Performance Tracking, "U" Drive (E)	Daily by 0900 hours

<u>Deliverables (E = Electronic via Link to a Document Management System, H = Hardcopy)</u>	<u>Due</u>
4. Daily Crude Oil Inventory Information Status Report (E)	Daily by 0800 hours
5. Reconciliation Report of SPR Crude Oil Inventory Stored in Leased Facilities and Commercial Terminals (E)	5 calendar days after receipt of report
6. Crude Oil Transfer Measurement and Variance Investigation Report, including trending analysis (H)	30 calendar days after month end
7. Oil Movement Variance Trend Analysis (E)	Quarterly, as applicable
8. Notification Report of SPR Crude Oil Variances (E)	3 calendar days after completion of movement
9. Reconciliation Report of Terminal invoices and credit statements to ensure accuracy (E)	4 days after receipt of invoice/credit statement
10. Reconciliation of accuracy of lease agreement of monthly invoices/statements (E)	5 workdays after receipt of report/invoice
11. Written waiver request on crude oil quality anomalies (E)	2 workdays of initial verbal request
12. Quarterly Report by Site and Cavern on Crude and Oil Streams Received (E)	15 calendar days after quarter end
13. Cargo Preference Compliance Status Report as requested (E)	Quarterly, 15 calendar days following report period
14. Year-End Crude Oil Inventory Report (E)	The last workday of January each year for the period ending December 31

<u>Deliverables (E = Electronic via Link to a Document Management System, H = Hardcopy)</u>	<u>Due</u>
15. Drawdown and Distribution, Receipts and Fill Configuration Charts (H)	20 calendar days after quarter end
16. Drawdown Readiness and Capability (RECAP) Report/SPR Exchange Readiness Report (SPREX) (E) and (H)	20 calendar days after quarter end
17. Provide FTZ Annual Report (E)	30 calendar days after end of fiscal year
18. Energy Management Activities: <ul style="list-style-type: none">• Updated Energy Management Plan Report and Consolidated Energy Data Report (CEDR) (E) and (H)	By Milestone date
19. Status Report of Implementation of E2P2 Program (E)	15 calendar days after quarter end
20. Status Report of Implementation of Alternate Fuel Vehicles Program (E) and (H)	15 calendar days after quarter end
21. Updated Drawdown Implementation Manual (DIM) and Exchange Manual (E) and (H)	Each year by September 30
22. Completion of an EAGLE or Modular Exercise Report (E) and (H)	By Milestone dates
23. Updated Drawdown Readiness Plan (5-Year STE Matrix) (E) and (H)	Each year by August 31
24. Interim System Test Exercise Reports indicating DM's initial assessment of achieving exercise objectives (E)	Within 20 calendar days after completion of exercise
25. Planning document for System Test Exercise and Tabletop Exercises, including briefing to senior staff (E) and (H)	60 calendar days prior to exercise initiation

Deliverables (E = Electronic via Link to a
Document Management System, H = Hardcopy)

Due

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| 26. Results of various System Test Exercises: | |
| • Tabletop Exercise Reports (E) | 45 calendar days after exercise briefing |
| • Final Completion Reports for STEs, including briefing to senior staff (E) | Within 60 calendar days after exercise completion |
| • Final Reports for Recovery Test (E) | 75 calendar days after exercise |
| 27. Cavern Degas Completion Report (E) and (H) | Within 30 days of completion of Degas operation on each cavern |
| 28. Pipeline Leak Detection Report | |
| • Static (E) and (H) | Annually, 30 calendar days after test |
| • Dynamic (E) and (H) | Biennially, 30 calendar days after test |
| 29. A monthly site Fire Protection Inspection Report to each respective SSR (E) | 15 th calendar day of each month |
| 30. Quarterly National Pollutant Discharge Elimination System (NPDES) Discharge Monitoring Reports (DMRs) to the SSR and the appropriate State Agency (H) | 18 calendar days after the quarter end |
| 31. Quarterly Aviation Usage Report in the Federal Aviation Interactive Reporting System (FAIRS) and Aviation Performance Data (E) | 30 calendar days after end of quarter being reported |
| 32. Annual 10-Year Cavern Sampling Plan (E) and (H) | July 1 |
| 33. Corporate Operating Experience Quarterly Report (E) | 30 calendar days after end of quarter being reported |

Deliverables (E = Electronic via Link to a Document
Management System, H = Hardcopy)

Due

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| 34. | Record Exchange Program Premium Barrels monthly in Allegro | 8th workday of each month |
| | NOTE: These receivable barrels must be distinguished from any other receivables listed, such as Exchange barrels) (E) | |
| 35. | Provide report identifying crude oil prices for Exchange base contract, crude substitution, and premium barrels | 5th workday of each month |
| | NOTE: Include crude stream and barrel type (E) | |
| 36. | Provide notification when Exchange original contracted volume reach contracted stipulated percentage (E) | Within 7 business days of achieving targeted percentage |
| 37. | Annual Assessment of Terminals Emergency Power Generation (E) and (H) | By Milestone date |

III. PERFORMANCE MEASURES

See Attachment 1 for Performance Measures.

M&O CONTRACTOR FOR STRATEGIC PETROLEUM RESERVE

Work Authorization Directive

Section B - Cavern Integrity and Workovers

I. DESCRIPTION OF WORK

- A. The Contractor shall, in accordance with written directives, perform the following New Orleans Cavern Integrity and Workover activities:
 - 1. Manage and operate the Strategic Petroleum Reserve (SPR) cavern integrity and workover program in a safe, effective, efficient, timely and environmentally compliant manner consistent with Department of Energy (DOE) objectives and requirements ensuring compliance with current DOE Conduct of Operations, and Occurrence Reporting and Processing System requirements.
 - 2. Ensure that site-specific configurations and operations procedures at all sites are in compliance with established design and performance criteria.
 - 3. Support the day-to-day execution of the SPR Fluid Movement, oil fill, drawdown, and exchange programs.
 - 4. Assure all the applicable regulatory requirements for the SPR wells, caverns, workovers, etc. are timely met.
 - 5. Develop workover procedures and schedules. Assure workover materials and subcontracts are ordered and ready when needed to support rig operations without delays. Initiate all work orders to support the approved workover schedule.
 - 6. Develop and recommend engineering solutions to downhole and wellhead problems.

- B. The Contractor shall, in accordance with written directives, perform the following site cavern integrity and workover activities:
1. Maintain the Government-owned caverns, brine disposal wells, and associated wellhead and downhole equipment in accordance with Levels I, II, and III Criteria, and DOE-approved Operating Manuals and Procedures in a safe, efficient, and environmentally compliant manner.
 2. Ensure that the DOE workover rig, wellheads, and downhole equipment are operated and maintained within their prescribed operational parameters and in compliance with all applicable DOE, SPRPMO, and Regulatory Orders.
 3. Provide integrated cavern and workover planning to assure adequate preparation, necessary resources, and formal scheduling of all cavern and well activities to achieve program objectives.
 4. Monitor and analyze storage cavern and well data to ensure that caverns are operated in compliance with established design and performance criteria.
 5. Monitor and analyze disposal well data to ensure that wells are operated in compliance with established design and performance criteria.
 6. Ensure that the SPR caverns, cavern wells, and brine disposal wells are operated, tested, and maintained in accordance with DOE Orders, and State and Federal regulatory requirements.
 7. Ensure that proper permits are issued to workover and subcontractor personnel, and that safety and environmental procedures are followed.

II. DELIVERABLES

Deliverables include the following:

<u>Deliverables (E = Electronic via Link to a Document Management System, H = Hardcopy)</u>	<u>Due</u>
1. Daily Cavern Report (E)	Daily
2. Daily Workover Activities Reports (E)	Daily
3. Weekly Cavern Operations Report by Site (E)	Weekly, by noon Tuesday
4. Cavern Capacity, Inventory, Ullage, and Volumes Reports (E)	15 working days following end of month being reported
5. Quarterly Cavern Integrity Report (E)	30 calendar days following the end of the quarter
6. Quarterly Disposal Well Report (E)	30 calendar days following the end of the quarter
7. Quarterly Casing Failure/Loss Report (E)	30 calendar days following the end of the quarter
8. Annual Cavern Volume Report to include analysis technique used, permitted cavern capacity, actual cavern capacity, and permitted cavern volume (E)	Each year by January 31 (Permit requirement in accordance with Railroad Commission of Texas as required by Texas Rule 95)
9. Cavern Integrity Test Reports (E) and (H)	30 calendar days following end of test
10. Workover Completion Reports to the SSR and SPRPMO (E) and (H)	30 calendar days following completion of the workover

<u>Deliverables (E = Electronic via Link to a Document Management System, H = Hardcopy)</u>	<u>Due</u>
11. Workover Management Plan/Procedures (E)	Final due 14 calendar days prior to commencement of work
12. Cavern Integrity Test Procedures (E)	Final due 14 calendar days prior to commencement of work
13. Wireline Procedures (E)	Final due 2 working days prior to CRC
14. Cavern Pressure Control Validation (E)	Weekly, by noon Monday Quarterly by 5 working days following end of quarter
15. Texas Regulatory Requirements	
(a) Annual Well Monitoring Report Underground Storage in Salt Formations (H-10-H) (H)	Railroad Commission of Texas as required by Texas Rule 95
(b) Oil Well Potential Test, Completion or Recompletion Report and Log (W-2) (Rule 16 and 51) (H)	Railroad Commission of Texas as required by Texas Rule 95
(c) Review sonar histories to assure any cavern due for survey to meet DOE 10-year requirement is performed. In addition, perform surveys as needed after a drawdown or when there is a major salt fall or other problem that may have caused a significant change in cavern configuration. (E) and (H)	Not to exceed 10 years

Deliverables (E = Electronic via Link to a
Document Management System, H = Hardcopy)

Due

16. Louisiana Regulatory Requirements

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| (a) Annual Brine Injection Report (UIC-10) (H) | Louisiana Department of Natural Resources Injection and Mining Division, as required by State-wide Order 29B |
| (b) Semiannual 29-M Cavern Safety Inspection (H) | Louisiana Department of Natural Resources Injection and Mining Division, as required by State-wide Order 29M |
| (c) Well History and Work Resume (UIC-17) (H) | Louisiana Department of Natural Resources Injection and Mining Division, as required by State-wide Order 29B and 29 M |
| (d) Sonar Survey (verified every 5 years, or as soon as possible thereafter, but not to exceed 10 years) (E) and (H) | Not to exceed 10 years |

17. Surveillance report identifying the drilling and seismic activities in the vicinity of each SPR site, excluding New Orleans (E) and (H)

Semiannually, by January 15 and July 15

III. PERFORMANCE MEASURES

None.

WAD NUMBER: 2011-1.L
PERFORMANCE AREA: Section A – Operations
FISCAL YEAR: 2011

CRITERIA	PERFORMANCE MEASURE	FY 2011 OUTPUT	
		MINIMUM	TARGET
1. Manage drawdown/distribution capability program, to include metering and sampling equipment and drawdown-critical-must-operate pumps and motors, in order to commence drawdown in 13 days and reach maximum drawdown rates by day 15.	a. Total maximum drawdown rate for initial 90-day period for four SPR sites within 15 days of notice to begin drawdown (subject to oil inventory limitations and Vapor Pressure impacts).	a. Published rate from the current Drawdown Readiness and Capability Report (RECAP)	a. N/A
	b. Minimum calculated site drawdown availability at each site (subject to Vapor Pressure impacts).	b. ≥ 95 percent	b. N/A
2. Perform crude oil deliveries from/to SPR in accordance with approved withdrawl/fill plans.	Successfully execute 100 percent of the required oil movements, as required, including drawdown, exchange, and emergency relief.	N/A	100 percent